

Acuva

Acuva is a leading design and development company for UV-LED based water purification systems for a variety of off-grid and residential settings, providing access to safe drinking water that is convenient, energy efficient and environmentally friendly.

CHALLENGE

Purifying drinking water in off the grid locations, such as RVs, boats and cottages, can be difficult. Though there are several methods for purifying drinking water, many of these options are ineffective in eliminating microbial contamination, or involve processes that are difficult to implement in mobile applications or remote locations. The most common solution, bottled water, is inconvenient, expensive, and creates waste.

Disinfection technologies, such as UV lamps, are difficult to maintain and are not environmentally friendly. Chemical water treatment with chlorine is an option but it often leads to the formation of unwanted by-products and adds to bad odor and taste. Filters, although easy to install, can only remove sediment and some pollutants and are not effective in removing contaminants such as bacteria, viruses and cysts (E.coli, MS2, and cryptosporidium), because these microorganisms are small enough to pass through a filter.

The good news is that disinfecting water with ultraviolet (UV) light has several benefits. UV disinfection utilizes strong short-wavelength (UVC - 250-280 nm) radiation to inactivate microorganisms by destroying nucleic acids and disrupting DNA. UVC LEDs are compact, energy efficient and are environmentally friendly. UVC LEDs can last between five and ten years and there is no limit to how many times they can be turned on and off, which increases efficiency and lifespan.

Acuva's latest water purification system, the Eco Water Purifier is the most compact and economical in their suite of products, and is ideally suited for generating clean drinking water out of a single faucet. This product harnesses the maximum amount of UV energy into the water, achieving more output and purity with the same number of LEDs by using Klaran UVC LEDs from Crystal IS. The Eco Water Purifier is a good fit for customers who seek a maintenance-free, low-power battery operated water purifier that can be used in a variety of settings.

“Crystal IS LEDs have the most effective combination of wavelength and disinfection functionality in the market. The wavelength of these UVC LEDs facilitates maximum disinfection.”

Manoj Singh
Founder, CEO and President
Acuva



Acuva's Eco Water Purifier is their most compact and economical system that is ideal for a single faucet of clean drinking water.

“With their low power consumption, durability and performance, Crystal IS UVC LEDs are an excellent addition to Acuva’s products. My team has found that these UVC LEDs are about 20-25% better in both disinfection power and effectiveness than other comparable products in the market. Crystal IS is very open about their product roadmap, which allows us to better plan our product development based on the evolution of this new technology.”

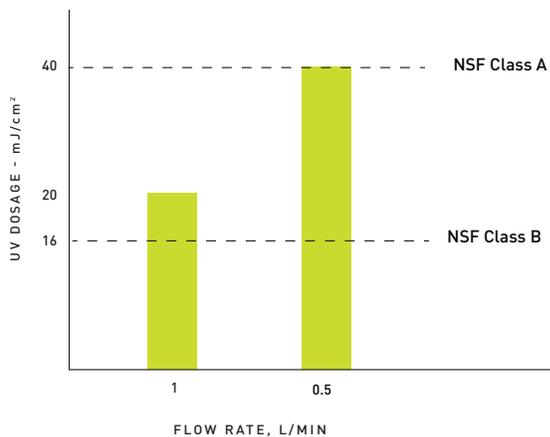
Manoj Singh
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SOLUTION

Acuva developed the Eco Water Purifier by designing their optics and hydrodynamics into the reactor systems around Klaran UVC LEDs from Crystal IS. Klaran UVC LEDs offer effective combinations of wavelength and power to combat water contamination, and maintain a superior ratio of the total power output to the power used for disinfection compared to other options in the market. This ratio is possible in part because Klaran UVC LEDs maintain a peak germicidal operating range of 260-270 nm, which allows these products to effectively inactivate microorganisms.

Like all Acuva products, the Eco Water Purifier disinfects water with a two part process involving a composite filter and a UVC LED chamber. The composite filter removes sediment and the activated carbon enhances the taste, odor, and color, while the UVC LED chamber sterilizes harmful bacteria and viruses by disrupting their DNA. Using Klaran UVC LEDs in the Eco Water Purifier enables Acuva’s product to radiate water with wavelengths in the range of 260-270 nm.

FIGURE 1: DISINFECTION RATE – ECO WATER PURIFICATION SYSTEM



The ECO Water Purifier from Acuva exceeds NSF Class B standards at 1 liter per minute and meets Class A standards at 0.5 liters per minute.

Another reason for choosing UVC LEDs in the product design is that they do not require storage of hazardous material, require minimal space for electrical components, and do not affect the smell or taste of the minerals in water. Acuva’s Eco Water Purifier is the least expensive of any similar product on the market and easily fits under a standard RV sink. One of the reasons the product is so compact is that it uses the water flowing through the purifier to cool the device, so it does not need the addition of fans for cooling, reducing the mechanical components and making it a maintenance free product.

Crystal IS Advantage

Crystal IS Klaran UVC LEDs are compact, are environmentally friendly, and offer efficient germicidal wavelength over traditional light sources. In addition, Klaran LEDs provide:

- Instant, on-demand disinfection
- Scalable and flexible duty cycles
- Energy efficiency suitable for battery-powered applications
- Long life

FIGURE 2



Klaran UVC LEDs enable the Eco Water Purifier from Acuva to be more compact, more efficient water disinfection system. This allows it to easily fit under the sink in most RV or boats for clean drinking water in off grid locations

“With their low power consumption, durability and performance, Crystal IS UVC LEDs are an excellent addition to Acuva’s products,” says Manoj Singh, Founder, CEO and President of Acuva. “My team has found that these UVC LEDs are about 20-25% better in both disinfection power and effectiveness than other comparable products in the market. Crystal IS is very open about their product roadmap, which allows us to better plan our product development based on the evolution of this new technology.”

WE INVITE YOU TO LEARN MORE ABOUT OUR UVC LEDs.



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